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Towards an Integrated Model of Antecedents and Consequences of Perceived Risk of Investors in Tunisian Stock Market

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ABSTRACT

The study investigates the antecedents and consequences of the risk perceived by investors in the Tunisian Stock Market. In other words, it examines the factors affecting the perceived level of risk towards the stock market and the behavioral responses induced by the perception of risk. For this purpose, a questionnaire was developed and distributed to 411 individual investors chosen by 24 brokers' firms present in the Tunis Stock Exchange. The results show that more the investor is optimistic and self-confident; the lower is the perceived level of risk towards the stock market. Similarly, a perception of a good quality of information disclosed as well as the satisfaction with yield re-allocation by listed companies, reduce the perceived risk towards the stock market. Nevertheless, the results prove that the existence of information asymmetry increases, instead of reducing risk perception. Moreover, perceiving risk towards the stock market leads to an intensive search for information (various types and sources of information), a good performance and a strong intention to reinvest. The use of structural equation model allowed us, on one hand, to report the importance of the risk perception in the decision- making process and on the other hand, to emphasise the role of partial mediator played by the investment performance between the risk perception and the intention of reinvestment.

Keywords: Risk perception, Individual investors, Structural equation model, Formative construct, Investment performance.
JEL Classification: G15.

1.0 Introduction

The perceived risk plays a crucial role in the behavior of the human being, especially when it comes to decision making in an uncertain situation. That is how we can understand what Ricciardi (2004) means by saying "whether the activity is driving a car or investing in the stock market, everyday we are exposed to all forms of risk. Risk can have different meanings to different individuals". Worried about this reality, a profusion of research in various disciplines attempted to study the concept of perceived risk. Particularly, in marketing, this notion was examined by several studies in various contexts such as the evaluation of a particular brand or product (e.g., Erdem and Swait 2004; Dowling and Staelin 1994), or service (e.g., Bansal and Voyer 2005; Murray 1991). The point of convergence of all this variety of research was the revealing of the diverse actions undertaken by consumers aiming at decreasing the risk (recognized

generally by risk-reducing strategies). Indeed, the risk perception activates in the individual the activity of the information search (e.g. Dowling and Staelin 1994; Mitchell 1992; Srinivasan and Ratchford 1991). Joining this current of research, this current study seeks to examine the role that the perceived risk could play in the adoption of the risk-reducing strategies by a person in the context of investment in stock market.

By reading the literature on the perceived risk, we can realize that perceived risk includes two components, namely, uncertainty and importance (or significance) of consequences (Mallet 2000; Dandouau 2000; Verhage et al. 1990; Mitchell and Greatorex 1989) causing, therefore, two different modes of behavioral responses in order to decrease the risk (Cho and Lee 2006; Taylor 1974; Cox 1967a). To illustrate this, Taylor (1974) asserts that "Uncertainty about the outcome can be reduced by acquiring and "handling" information. Uncertainty about the consequences can be dealt with by reducing the consequences through reducing the amount at stake or putting off the choice". Although the reduction of the amount at stake is held as risk-reducing strategy, a lot of research concentrated only on the study of information search. Nevertheless, Cho and Lee (2006) affirm that a complete comprehension of the risk-reducing strategies can be accomplished only by taking into account the two elements together (i.e., search for information and reduction of amount at stake).

Being interested in risk perception, the actual study investigates two behavioral modes intended to attenuate the perceived risk (i.e., reduction of uncertainty and significance of consequences). In addition to risk-reducing strategies, another behavioral response can emerge in the context of investment in the stock market when taking into account the investment performance. Since the investment performance is a crucial factor motivating an individual to invest in stock market, an investor could continue to reinvest more albeit he perceives a high level of risk towards the stock market. In this context, the investment performance could play a mediating role between the risk perception and the reinvestment intention.

Moreover, we examine factors related to listed companies (the perceived quality of disclosed information and the satisfaction with yield reallocation), the investor (investor's individual profile) and the stock market (the information asymmetry) as key antecedents of the perceived risk. Put all together, we propose a model which identifies the interactions between the antecedents suggested, the perceived risk and the resulting behavioral responses. This model will be useful to us, in fact, to jointly test the link between the factors influencing the risk and the perceived risk and its effect on two different modes of risk-reducing strategies and the investment performance. Finally, we can note that the suggested model was analyzed through a questionnaire distributed to 411 individual investors chosen by 24 brokers' firms present in the Tunis Stock Exchange.

2.0 Conceptual Framework

The proposed model presents the antecedents and consequences of the perceived risk in the context of investment in stock market.

Figure 1: Conceptual Model of Antecedents and Consequences of Perceived Risk

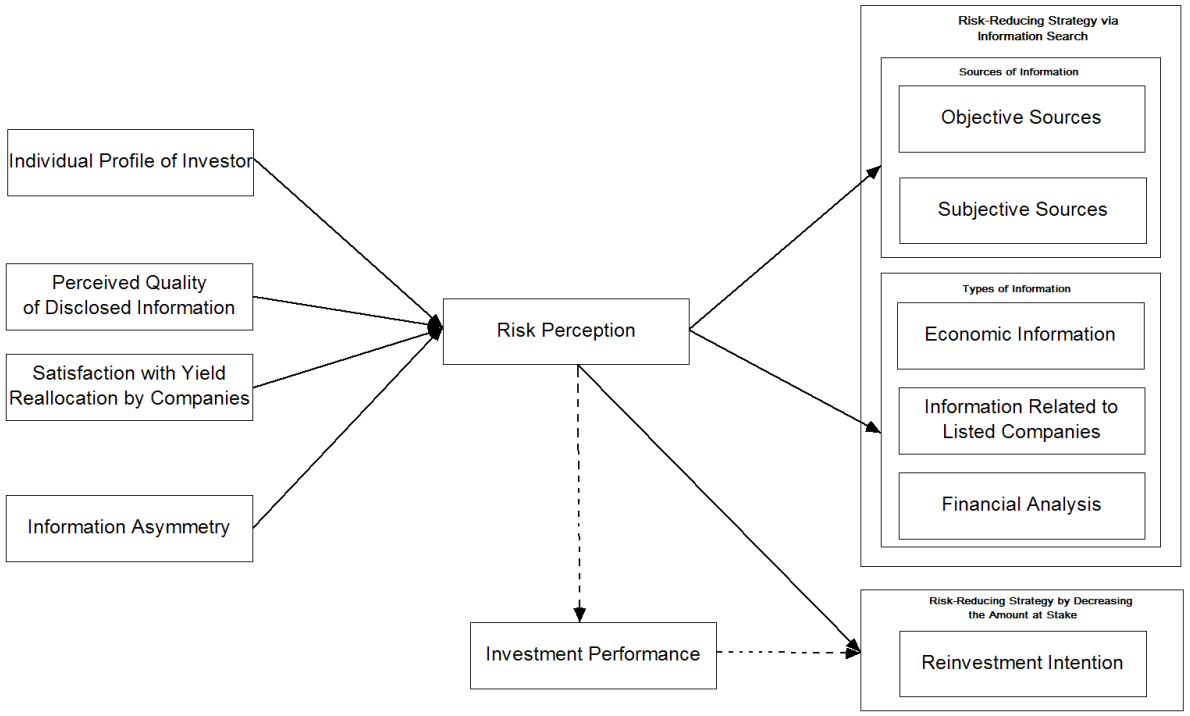

Figure1 summarizes the different relationships between the risk perception, antecedents and consequences of the risk perceived by investors in the Tunisian Stock Market.

As shown in Figure1, the model is based on the following propositions: **(1)** The investor's individual profile (factor related to investor), the perceived quality of disclosed information and satisfaction with yield reallocation by listed companies (two factors related to company) and the information asymmetry (factor related to stock market) influence the investor's risk perception; **(2)** The risk perception affect the behavior intended to manage uncertainty and significance of consequences; **(3)** The investment performance play a mediating role in affecting risk perception's impact on reinvestment intention.

In order to better understand the proposed model, it appears necessary to present, in the following part, in detail the perceived risk, its antecedents and consequences as well as the various relationships suggested.

2.1 Perceived Risk

When reviewing different studies that investigated the perceived risk, it is clear that researchers do not agree on the definition to give to this concept. To put this forward,

Mallet (2001) thinks that "*the vagueness which characterizes the concept of perceived risk stands out as well at the level of the proposed definitions as at the level of its various facets*". Sharing the same opinion, Brunel (2002) claims that "*if there is no agreement around the definition of the perceived risk, there does not exist either of consensus relating to nature even contents of the latter*". Nevertheless, returning to the pioneering work of Bauer (1960) which remarks that "consumer behavior involves risk in the sense that any action of a consumer will produce consequences which he cannot anticipate with anything approximating certainty, and some of the which at the least are likely to be unpleasant", we can understand that perceived risk contains essentially two components: uncertainty and negative consequences (losses). Classically and further to the founding contribution of Bauer (1960), several researchers define this notion according to this structure (Cho and Lee 2006; Taylor 1974; Cox and Rich 1964; Cunningham 1967; Kogan and Wallach 1964). For example, Cox and Rich (1964) assert that perceived risk is "a function of two main factors, namely the amount at stake in the purchase decision, and the individual's feeling of subjective certainty that he/she will "win" or "lose" all or some of the amount at stake". Moreover, Kogan and Wallach (1964) remark that perceived risk includes "[…] two somewhat different facets: a "chance" aspect where the focus is on probability and a "danger" aspect where the emphasis is on severity of negative consequences". Attempting to introduce the first component, Yates and Stone (1992) point out that there is no risk if there is no uncertainty. More explicitly, a decision situation is so-called risky when a person is uncertain about consequences of his choices (Cox 1967a). Such a situation is likely, according to Libby and Fishburn (1977), when one hand possible outcomes generated by a decision vary considerably. On the other hand, obtaining the desired results is strongly affected by chance. The degree of such uncertainty is judged differently from one person to another (i.e., perceived risk) (Cho and Lee 2006). So, if the immanent uncertainty of a decision situation corresponds to objective risk, then perceived risk would be a subjective and biased evaluation of this objective risk encouraging, afterward, a decision-maker to choose a particular behavior (Dowling and Staelin 1994).

Besides uncertainty, perceived risk has a second component: significance of consequences. According to Dandouau (2000), uncertainty is "*a necessary but not*

sufficient condition, in order to have risk perception. Perceive uncertainty without buyer having to bear any consequences does not lead to represent his choice problem in terms of perceived risk". The consequences relate to how the financial losses associated with negative consequences are harmful (Mitchell 1999). In an optical synthesis, Cox (1967a) indicates that potential losses include the unachieved goals, loss incurred in the purchase (e.g., money and time), the penalties imposed on the person by his environment and other hazards associated with the purchase. In particular, if this loss affects significantly their financial situations, then people will tend to perceive such a risky decision situation.

Since perceived risk is an overestimation by a person about a risky decision situation, his evaluation depends heavily on his psychological and situational characteristics (Cho and Lo 2006). Sharing this opinion, Slovic (1988) argues there are a large number of factors that may influence the person's risk perception. In what follows, we will shed light on these different antecedents.

2.2 Antecedents of Perceived Risk

Several researchers specify that perceived risk comes mainly from three different sources namely: the individual, the product and the situation (e.g., Mallet 2004; Volle 1995). Like these researchers, the current study will identify factors influencing risk perception in the investment context as belonging to the investor, the listed companies and the stock market.

2.2.1. Antecedent related to the Investor

Among factors which could influence risk perceived by investor is his individual profile. This profile is defined, in fact, in terms of two personality traits namely: self-confidence and optimism. The first one relates, according to Ricciardi and Simon (2000), to "the belief in oneself and one's abilities with full conviction". In other words, Wright (1975) defines self-confidence as capacity which an individual thinks to possess following observations made over time to understand many problems of everyday life. Self-confident individuals perceive themselves as able to manage and cope with inherent risk of investing in the stock market. So, self-confidence can influence the way the investors perceive risk towards the stock market. The second trait (i.e., optimism) is defined as "the overestimation of one's chances or one's ability" (Page 2009). According to Weinstein (1980), persons have attractive views in an unrealistic manner about their

capacities and perspectives. Interested in the study of optimism, many researchers attest its existence in students' (Grimes 2002), professionals' (Olsen 1997), managers' (Malmendier and Tate 2005; Cooper et al. 1988; Larwood and Whittaker 1977) and investors' behavior (Barber and Odean 2001; Gervais and Odean 2001; Bernatzi et al[1]. 1999). This personality trait may affect the risk perceived by a person. This was confirmed by Roy and Tvszka (2005) who argue that "a robust finding on risk perception is that most people tend to be optimistic in evaluating their future. That is, comparing to objective criteria, people assign too high probabilities to their attainments of desired outcomes". Sharing the same vision, Kouabenan et al. (2006) think that optimism is an obstacle to assessing risk in the extent where people feel they are less exposed to risk than others. Moreover, they claim that "*this perception is underpinned; it seems, by some overestimation of his personal ability to cope with risks involved and to perception rather poor capabilities of others to manage them*". Thus, optimistic people tend to perceive a lower risk level than pessimists in the context of investment. In a more formal manner, we hypothesize:

H1: *The more the investor is optimistic and self-confident; the lower is the perceived level of risk towards the stock market.*

2.2.2. Antecedents related to Listed Companies

The quality of information transmitted to the stock market occupies a prominent place in financial theory. To illustrate this, Rogers (2008) argues that "well-functioning capital markets[2] rely on high quality disclosure". It is deemed relevant, according to Djongoue (2007), when it offers the opportunity to its users to evaluate all events in a correct manner (past, present and future). In this regard, Boisselier and Mekaoui (2005) add that the choice of strategy disclosure that meets the expectations of the market is perceived as an essential constraint which a company has to face. Therefore, quality of information delivered to stock market is the only guarantee to satisfy investors. Moreover, Declerck and Martinez (2004) indicate that "*the disclosure aims to better*

[1] For example, Benartzi et al. (1999) found, from a questionnaire distributed to users of the website of Morningstar. Com. that 74% of respondents are optimistic, while 7% are pessimistic and 19% have a well-balanced behavior. Hence, they conclude that people are often optimistic than pessimistic.

[2] In particular, Healy and Palpu (2001) suggest that "corporate disclosure is critical for the functioning of an efficient capital market".

developing company by facilitating perception of investors and other market participants". A position partaken by Gao (2008) who asserts that information disclosure influences the investor's perception. He also states that "while disclosure reduces the risk of per unit investment, it could increase the total investment". Unlike the previous literature which studied this concept, the current paper focuses on the impact of perceived quality of the disclosed information on risk perception of the investor. It could be defined as the individual judgment carried by the investor towards the information communicated by the listed companies. In other words, it could indicate the level of information's quality such as it was perceived, in a subjective way, by investor. Perceiving good quality of disclosed information leads to a lower level of risk perceived towards the stock market. Moreover, Wang et al. (2006) specify that "good quality of information disclosure (e.g., transparency, timely release, integration and authenticity) could reduce investors' risk perception".

At the same time, satisfaction with yield reallocation by listed companies is taken as an antecedent of perceived risk. Other than the perceived quality of information transmitted to stock market, investors may be concerned with the manner in which listed companies reallocate the profits from their activities. Thus, the choice of particular strategy in terms of reallocation of profits inevitably determines the relationship between the company and the investor. In fact, the satisfaction with yield reallocation can be defined as feeling experienced by an investor with respect to the choice of company's reallocation of profits. Given the importance of this element for market participants, satisfaction with yield reallocation by listed companies could exert significant influence on their risk perception. People satisfied with yield reallocation by listed companies perceive lower level of investment risk relative to those less satisfied. Thus, we can advance the following hypotheses:

H2.1: *The more the quality of information revealed by listed companies is perceived as good, the lower is the perceived level of risk towards the stock market.*

H2.2: *The more the investor is satisfied with yield reallocation by listed companies; the lower is the perceived level of risk towards the stock market.*

2.2.3. Antecedent linked to Stock Market

In marketing, several researchers believe that antecedents relating to purchase situation may affect individual's risk perception (Mallet 2004; Dowling and Staelin 1994; Lumpkin and Dunn 1990; Dash et al. 1976). For example, Mallet (2004) considers that "*purchase situation in which is consumer influences on risk he perceives*". This same finding was, moreover, advanced by psychological studies which claim that risk perception can be greatly influenced by context in which individuals find themselves when making their decisions (Cohen et al. 2007). By returning to all this research, we can expect that stock market (investment situation) influences the risk perceived by the investor. Specially, information asymmetry is retained as an explanatory factor of risk perception. In fact, it refers to a situation where people existing in stock market do not all have the same information, some being better informed than others. Liao et al. (2010) argue that information asymmetry refers to a situation where financial market participants have a set of unequal information.

In a more explicit, Chan et al. (2008) indicate that it exists when groups of investors are in possession of different information, that is, informed investors have private information, while the uninformed have only information publicly available. Information asymmetry between investors has been studied by several research (e.g., Brown and Hillegeist 2007; Chen 2003; Admati and Pfleiderer 1988; Kyle 1985; Grossman 1976). For example, Cheng (2003) argues that it is a salient feature of information on China's stock markets. Okpara (2010) indicates that "the level of information asymmetry can be characterized by the risk of trading with a privately informed investor". Thus, the less the investors share the same information, the more they perceive a high level of risk towards the stock market. In a more formal manner, we advance the following hypothesis:

H3: *The greater the information asymmetry is in the stock market, the lower the perceived level of risk towards the stock market is.*

2.3 Consequences of Perceived Risk

As discussed interiorly, perceived risk can be handled by using two different risk-reducing strategies. The first is to diminish uncertainty through information search and the second attempts to attenuate vulnerability by decreasing the amount at stake. Set apart

these strategies, a person investing in the stock market will inevitably seek to make gains. Conscious of the importance attached by investor for this purpose, this study tries also to investigate the mediating role of investment performance in the effect of risk perception on reinvestment intention.

2.3.1. Information Search

The relationship between perceived risk and information search activity has been studied by several researchers (Cho and Lee 2006; Murray 1991; Lutz and Reilly 1973; Sheth and Venkatesan 1968; Cox 1967a). For example, Murray (1991) indicates that "in the purchase decision process, search information behavior is motivated in part by perceived risk and consumer's ability to acquire relevant information with which purchase uncertainty can be addressed". Trying to explain this link, Cho and Lee (2006) believe that high perceived risk drives individuals into a distressed and anxious state which thereafter incites them to pursue problem solving activities. Thus, they use information search as a problem-resolving strategy in order to mitigate perceived risk (Dowling and Staelin 1994). Nevertheless, other researchers do not believe in the existence of this link. In particular, Volle (1995) indicates that the hypothesis according to which high risk perception engendering more information search is questionable. A position shared by Gemunden (1985) who reported that half of empirical studies in this area reject positive relationship between perceived risk and information search. Some proposals for explanation were provided by Simon (2000) such as the existence of information costs, a degree of risk perception below a minimum threshold, potential dissonance generated by additional information. For their part, Cho and Lee (2006) attach mainly the absence of this link to decision situations examined in previous studies that have involved relatively low levels of risk (e.g., products that were bought routinely) which prompted the consumer not to seek the information thereafter. Conversely, in some decision contexts where the level of risk is relatively high (such as investment in stock market) risk perception leads necessarily to important information search.

Investing in the stock market acquires generally from a person to implement a sum of money and bear a significant amount of risk. In this case, Lin and Lee (2004) specify that the search for information turns out an essential activity that every investor has to do it in order to make his investment's decisions. These positions are shared by

Loibl and Hira (2009) who indicate that risk of financial loss and high costs caused by the revision of a bad investment decision motivate investors to seek information. To look for the information means, according to some researchers, to consult information sources (Engel et al. 1993; Locander and Hermann 1979). Moreover, several typologies of sources exist in the literature on information search. For example, Engel et al. (1993) classify them according to the criterion of origin in internal and external sources. Information Search is intern when individuals use information already stored in memory while external research involves gathering information from the environment.

External information can be classified in this study, as from those sources known as objective or subjective. In the context of investment, the first category gathers the periodic reports, the websites specializing in information as well as the ratings companies. The second category of sources (i.e., subjective sources) pulls together investor's entourage (friends, colleagues ...) and word of mouth. Facing a high perceived risk, an investor would engage in an activity of information search preferring to consult not only a particular source but different information sources. This idea was, in fact, reported by Murray (1991) who states that "consumers use various amounts and types of information sources to reduce perceived risk, depending on the amount and type of risk". The individuals seek information from a variety of sources when they perceive risk (Cox 1967a). In the light of these observations, we formulate the following hypothesis:

H4: *The higher the perceived level of risk towards the stock market is, the higher it will consult various information sources.*

Perceived risk determines not only the sources of information consulted, but also the type of information used by the investor. In attempting to reduce uncertainty surrounding the decision situation, consumers will use more diverse types of information (Murray 1991). The same behavior could be observed as well in the stock market because information is a means allowing limiting uncertainty surrounding the investment situation. So, the higher his perception of risk is, the more motivated to use different types of information he would be. In fact, the information consulted by the investor was classified in three categories. The first includes economic information (e.g., fluctuation of interest rate ...). The second retains information on listed companies (e.g., publication of financial statements...). Finally, the last category includes the financial analysis provided

by engineering consulting firms and brokers' firms. So, we advance the following hypothesis:

H5: *The higher the perceived level of risk towards the stock market is, the more different types of information will be used.*

2.3.2. Decrease in the Amount at Stake

Besides information search, risk perception could be reduced by restricting the amount at stake or vulnerability associated with adverse outcomes. Such behavior is intended to decrease the impact of negative consequences which result from a decision-making. In our study, the key behavior would be to revise the intention of reinvestment on the stock market. Moreover, in social psychology, the intention is the best predictor of an individual's behavior because it allows each person to incorporate independently relevant factors which may influence current behavior (Fishbein and Ajzen 1975). Among these factors, the current study could retain risk perception. Individuals perceiving a high level of risk would tend to change their intention to reinvest in the stock market. Referring to Lehu[3] (2004), the reinvestment intention could be defined as the disposition of an investor who declares himself favorable to renew the next time his investment's experience in the stock market. So, we formulate the following hypothesis:

H6: *A high risk perception on the part of investors will lead to a low intention to reinvest in the stock market.*

2.3.3. Mediating Role of Investment Performance

By opting for investment in stock market, every investor tries to make profitable his financial placements. Idea shared by Thayer (2008) who indicates that "[…] one universal factor in making an investment decision is the desire to realize a positive return". In this sense, Swanson and Lin (2005) consider that investment performance is the result of the investor's behavior in stock market. Although the research is limited, performance achieved by an investor in the stock market (i.e., investment performance) can be affected by risk perception. By studying the psychological mechanisms of risky investment behavior with 1547 individual investors present on Chinese Stock Markets, Wang et al. (2006) conclude that there is a positive relationship between risk perception

[3] Lehu (2004) defines purchase intention as "*the disposition of consumer who declares himself favorable for buying a product or service*".

and investment performance. According to their own terms, "higher risk perception led to higher investment performance". Thus, to perceive a high level of risk towards stock market could lead the investor to carry out a good investment performance. Unlike Wang et al. (2006), this study retains the investment performance in order to examine the possibility of the mediating[4] role of the investment performance in the effect of risk perception on reinvestment intention. In the other words, it expects that investment performance in affecting risk perception's impact on reinvestment intention. So, we advance the following hypothesis:

H7: *The investment performance plays a mediating role between the risk perception and the reinvestment intention.*

3.0 Methodology

3.1. Presentation and Description of Data

The data set used to examine the proposed conceptual framework was collected by using a self-administered questionnaire to the individual investors present on the Tunis Stock Exchange. Individuals surveyed were, in fact, chosen by twenty-four brokers' firms. About 600 questionnaires were distributed among whom 487 were recovered, showing a response rate of 81%. Nevertheless, during counting, seventy questionnaires were removed because of a high number of non-responses. Finally, 411 questionnaires were judged on our part exploitable to be analyzed.

3.1.1. Typology of Respondents

80.3% of investors were men while women represented only 19.7 %. The most important age group in the sample is that of 30-39 years (37%), followed by the 40-49 years (27.5%) and then those aged 20-29 (20.2 %). Finally, the least important age group proves to be that of more than 60 years (4.1%). Moreover, the majority of respondents reported being married and having children, this presented 54.4% of the sample. In addition, the sample consists of senior executives, middle managers, employees, freelancers, retirees, students and unemployed persons respectively 40.1%, 28.6%, 12.1%, 12.1%, 4.7%, 2.2 % and 0.2%. Finally, the results for income groups by investor

[4] Baron and Kenny (1986) define the mediating function of a variable as "the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest".

reveal that 26.5% of respondents receive between 1500 and 2000 DT while only 5.3% have incomes below 500 DT.

3.1.2. Characteristics of Investment Behavior in Stock Market

2.7% of respondents admit that they do not have any knowledge on the investment in stock market, whereas only 37.8% feel they have professional knowledge, in spite of the fact that the majority of the investors (94.4%) believe that a better knowledge of the investment in the stock market makes the investment more profitable. Also, most respondents (98.8%) say they have already invested in the stock market via one or more investment channels (Internet, banks, private manager or others) while less than 2% of investors (1.2%) are without any experience. Moreover, by asking people afterwards on their seniority as investors in stock market, 29% of respondents have experience ranging between 2 and 5 years followed successively by those with more than 10 years (25.8%) and between 5 and 10 years (20.9%) while those having only experience of 1 and 2 years and less than one year are respectively about 14.4 % and 10%.

79% of respondents confirm to have lost money by investing in a financial asset, while 21% counter it. In fact, to be participating in the stock market, the majority of respondents (76.6%) assert having operated only one broker, whereas 21% pass by two or several financial institutions while investing in the Tunis Stock Exchange. Meanwhile, we note that 38.8% of the individual investors spend less than 25% of their savings to invest in a financial asset. 31.7% and 15.1% of respondents give a share between 25% and 50%, 50% and 75%. Only 14.4% dedicate more than 75% of their savings to investment.

The results also show that almost half of respondents (49.4%) have as investment horizon the medium term. 32.3% and 9.5% of people invest respectively in the short and long term. Only a small number of respondents (8.8%) do not have any idea. Moreover, we find that 30% of investors keep, on average, a stock between 3 and 6 months, while 26.6% hold it 6 months to one year. 21.2% of respondents said, however, that their holding of a stock lasts on average less than 3 months while 17.1% preserve it between one year and 3 years. Finally, an average duration of more than 3 years was found among 5.1% of respondents. In the same way, 15.8% of investors hold shares in five listed

companies. 13.5%, 11.8% and 11% shareholders are respectively in 3, 4, 2 listed companies. A very small percentage of investors (0.3%) hold shares in twenty five companies listed in the Tunis Stock Exchange.

We also note that 40.3% of respondents are quite satisfied with their investments last year while only 7.5% acknowledge that they are not satisfied at all. In addition, 6.8% of respondents are completely satisfied with the investment on the Tunis Stock Exchange whereas 5.1% are not. The majority of the individuals said they are quite satisfied with the Tunis Stock Exchange (38.6%). Finally, investors believe generally that the weather, family and moods cannot modify their investment behavior (respectively 72.5%, 45.9%, 32.5% say never). They claim, on the other hand, that factors such as the financial market situation, economic conjuncture and the investment adviser have a significant impact on their behavior (respectively 36.2%, 41.7%, 12.8% say always).

3.2. Measures

Measures of our study were constructed as follows. At the beginning, sources of information (objective and subjective) and types of information (economic, related to listed companies and financial analysis) selected as first form of risk-reduction strategy (search information) were identified on the same scales of 5-point Likert (ranging from 'not at all the important' to 'very important') to measure the importance attached to the source and type of information before making an investment decision. Second, reinvestment intention (second form of risk-reduction strategy), investment performance and information asymmetry were each one measured by a single item. Thirdly, optimism and confidence, forming investor's individual, were measured by asking each respondent to evaluate himself on a bipolar 5-point scale. Moreover, the perceived quality of information disclosed by companies has been created by using 7 items (complete, transparent, authentic, up-to-date, timely, relevant and regular information). In addition, satisfaction with yield reallocation was measured by using 5 items (reallocation in the form of dividends, allotment of share, increase issue, split, reinvestment in future projects) along a Likert scale ranging from 5 points 'not at all satisfied' to 'totally satisfied'.

Finally, perceived risk was measured by using the psychometric paradigm developed by several researchers in psychology (Fischhoff et al. 1978; Slovic et al. 1979

1980 1982 1985; Slovic, 1985 1987 1992). Indeed, the results obtained from psychometric research shows that people evaluate any risky event based on two orthogonal dimensions namely: familiarity and controllability. According to Gigerenzer and Todd (1999), the term 'familiarity' is "a degree of knowledge or experience a person has respect to a task or object". In this regard, Ricciardi (2004) append that familiarity is "an inclination or prejudice that alters individual's perception of risk". Other than familiarity, controllability is broadly defined as "the ability to foresee and navigate potential hazards, thus erasing risk in a material way" (Natalier, 2001). For its part, Slovic (1987) specifies that controllability is the most important factor in risk perception. Indeed, people tend to perceive less risk for situations where they feel they can control them. Thus, we use these two factors in order to quantify the risk perceived by investors. In operational terms, familiarity and controllability were measured by a set of items representing the instruments necessary for investment (e.g., financial ratios, fluctuation of interest rates...) but as the two dimensions of perceived risk can be distinguished from each other. Once measured, we believe that the degree of familiarity and controllability of tools used for investment in stock market determine risk perceived by investors. In other words, these two dimensions are not manifestations of perceived risk but conversely are constructive (or formative) of this construct. Thus, we assume that the perceived risk is second-order formative construct[5].

4.0 Data Analysis and Results

Data analysis was conducted in three stages. First, Principal Component Analysis realized on data set (N = 411) via version 17.0 of SPSS was used to purify the measurement scales adopted in this study. Then, Confirmatory Factor Analysis with version 18.0 of AMOS was used in order to verify the factor structure found previously from the exploratory phase. Finally, to examine the hypothesized relationships suggested in the model, we used the structural equations modeling. According to Hoyle (1995), it represents the most widely adopted method to examine the causal relationships in a

[5] Based on Jarvis et al. (2003) and Mackenzie et al. (2005), Diamantopoulos et al. (2008) define the second-order formative by saying that « when dealing with multidimensional constructs, it is necessary to distinguish between (at least) two levels of analysis, that is, one level relating manifest indicators to (first-order) dimensions, and a second level relating the individual dimensions to the (second-order) latent construct".

complex theoretical model. At this stage, three types of fit indices were used to evaluate the quality of overall model fit: absolute indices (chi-square; RMSEA; GFI), incremental indices (CFI) and parsimony indices (χ^2/df ; PNFI). Checking the quality of adjustment allows testing afterwards the relations of the model.

4.1 Measurement Model

Table 1 shown below summarizes the main results from the phase exploratory and confirmatory relative to various constructs of model.

Table 1. Results of Exploratory and Confirmatory Phases for Measurement Model

	PCA	CFA	*Cronbach's Alpha*	*Jöreskog's Rhô*	*AVE*
Familiarity	KMO=0.886 T.Bartlett=0.000 Variance =62.088% Extraction>0.5	*All factor scores for different items are significant at a significance level of 0.001*	0.876	0.863	0.514
Controllability	KMO=0.886 T.Bartlett=0.000 Explained variance=61.614% Extraction>0.5		0.874	0.863	0.513
Investor's Individual Profile	KMO=0.500 T.Bartlett=0.000 Explained variance=76.971% Extraction>0.5		0.701	0.694	0.531
Perceived Quality of Disclosed Information	KMO=0.860 T.Bartlett=0.000 Explained variance=61.299% Extraction>0.5		0.872	0.866	0.522
Satisfaction with Yield Reallocation	KMO=0.622 T.Bartlett=0.000 Explained variance=72.752% Extraction>0.5		0.810	0.824	0.615
Objective Sources	KMO=0.648 T.Bartlett=0.000		0.722	0.707	0.500
Subjective Sources	Explained variance=64.030% Extraction>0.5		0.779	0.784	0.646
Economic Information	KMO=0.790 T.Bartlett=0.000 Explained variance=67.956% Extraction>0.5		0.851	0.845	0.526
Information Related to Listed Companies			0.776	0.780	0.500
Financial Analysis			0.838	0.834	0.716

Results from Principal Component Analysis reveal a one-dimensional structure for various constructs namely: familiarity, controllability, investor's individual profile, disclosed information perceived quality and satisfaction with yield reallocation. On the other hand, sources and types of information admit respectively bi-(objective and subjective sources) and tri-(economic information, information related to listed companies, financial analysis) dimensional structure. These same structures were, in a second step, confirmed from the confirmatory analysis because all factor scores for various items are significantly different from zero at significance level of 0.001.

To check reliability and convergent validity of each latent variable, we calculated respectively Cronbach's alpha, Jöreskog's rhô and AVE. According to results, all constructs show satisfactory reliability since the Cronbach's alpha and Jöreskog's rho coefficients are above 0.7. Moreover, the convergent validity of each construct is acceptable since AVE of each dimension is upper or equal to 0.5. So, we conclude that measurement model has a satisfactory reliability and convergent validity.

At the same time, we tend to verify that the measurement model of perceived risk is a formative model. In other words, the perceived risk could be presented as the conjunction of two factors namely familiarity and controllability. Table 2 below recapitulates the overall results.

Table 2. Confirmatory Analysis Model for the Measurement of Perceived Risk

	λ	λ^{st}	*CR*
Familiarity ⟶ Perceived Risk	1.000	0.784	-
Controllability ⟶ Perceived Risk	-0.251	-0.249	-5.121***

*** Significance Level: 0.001; λ: Loading; λ^{st}: Standardized Loading; CR: Critical Ratio.

We note that the relationship between familiarity and perceived risk is positive and significant (λ^{st} = 0.784). However, the effect of controllability on perceived risk is negative and significant (λ^{st} = -0.249, t = -5.121, p = 0.001). On the one hand, an increase in the degree of familiarity of investors with investment tools does not cause inevitably a corresponding increase in the level of controllability of these instruments. On the other hand, the more the investor knows and does not control the necessary instruments for investment, the higher the perceived risk is towards the stock market. Clearly, the perception of risk is high when there is a knowledge but lack of controllability of the tools necessary for investment by an investor. This finding is not surprising since Wang

et al. (2006) argue, from a mapping of risk perceptions, that Chinese investors have a low perceived risk when they feel familiar and control some sources of risk existing in the stock market. In contrast, their perception of risk is high when they are familiar and do not control other sources of risk. So, we can conclude that both latent variables, Familiarity and Controllability, are formatives of the construct 'Perceived Risk'. Consequently, the perceived risk is a second-order formative construct.

4.2. Integrated Model of Antecedents and Consequences of Risk Perception

Since the measurement model of perceived risk is a formative model, factors influencing risk perception will be subsequently considered as antecedents of familiarity and controllability. Explicitly, the investor's individual profile, perceived characteristics of listed company and information asymmetry will affect risk perception through familiarity and controllability of tools necessary to investment (see Fig.2 in Appendix).

Table 3 below summarizes all the results of estimates of standardized regression coefficients that can detect the effect of latent variables on each other and the value of *t*-statistics (CR). Likewise, different indices for evaluating the model fit were reported in Table 3.The chi-square of model was 128.405 with df = 43. The fit indices show that model has a good fit (χ^2/df= 2.986; RMSEA = 0.070; GFI = 0.951; CFI = 0.957; PNFI = 0.611). Thus, the model is acceptable and fits satisfactorily with empirical data. The check of good quality of adjustment authorizes, in what follows, the review of relationships included in the model.

Table 3. Structural Relationships in the Model

Model fit		
	Chi-square	128.405
	df	43
	RMSEA	0.070
	GFI	0.951
	CFI	0.957
	χ^2/df	2.986
	PNFI	0.611

Path	***β***	***β^{st}***	**CR**
R1.1 : Individual Profile ⟶ Familiarity	0.135	0.165	2.632**
R1.2 : Individual Profile ⟶ Controllability	0.175	0.168	2.601**
R2.1 : Perceived Quality of disclosed Information ⟶ Familiarity	0.356	0.363	6.113***
R2.2 : Perceived Quality of disclosed Information ⟶ Controllability	0.342	0.275	4.836***
R3.1 : Satisfaction with yield Reallocation ⟶ Familiarity	0.190	0.205	3.892***
R3.2 : Satisfaction with yield Reallocation ⟶ Controllability	0.259	0.220	4.038***
R4.1 : Information Asymmetry ⟶ Familiarity	0.160	0.273	5.495***
R4.2 : Information Asymmetry ⟶ Controllability	0.194	0.260	5.130***
R5.1 : Perceived Risk ⟶ Objective Sources	1.005	0.901	11.199***
R5.2 : Perceived Risk ⟶ Subjective Sources	1.000	0.628	-
R6.1 : Perceived Risk ⟶ Economic Information	0.823	0.656	10.197***
R6.2 : Perceived Risk ⟶ Information related to Listed Companies	0.884	0.866	11.567***
R6.3 : Perceived Risk ⟶ Financial Analysis	0.896	0.671	10.415***
R7 : Perceived Risk ⟶ Reinvestment Intention	0.208	0.178	3.321***

***Significance level: 0.001; **Significance level: 0.01; β: Regression Coefficient; β^{st}: Standardized Regression Coefficient ; CR : Critical Ratio.

First, results indicate that the individual profile of investor has a significant and positive effect on familiarity (β^{st} = 0.165, t = 2.632, p = 0.01) and controllability (β^{st} = 0.168, t = 2.601, p = 0.01) which leads us to keep R1.1 and R1.2. Thus, we can support H1. Second, we find that the perceived quality of information disclosed by listed companies has a positive and significant influence not only on familiarity (β^{st} = 0.363, t = 6.113, p = 0.001) but also controllability (β^{st} = 0.275, t = 4.836, p = 0.001), retaining R2.1 and R2.2. Consequently, we can corroborate H2.1. Third, the effect of satisfaction with yield reallocation by listed companies on familiarity and controllability is positive and significant (respectively β^{st} = 0.205, t = 3.892, p = 0.001; β^{st} = 0.259, t = 4.038, p = 0.001). Thus, we support H2.2. Fourth, we note that asymmetric information has a positive and significant impact on familiarity (β^{st} = 0.273, t = 5.495, p = 0.001). In addition, the effect of asymmetry on controllability is significant and positive, instead of being negative (β^{st} = 0.260, t = 5.130, p = 0.001). Therefore, we reject H3.

The results suggest, moreover, to retain R5.1indicating that perceived risk has a positive and significant effect on the objective sources' number of information consulted

(β^{st} = 0.901, t = 11.199, p = 0.001). We also find that risk perception has increased the subjective sources' number of information consulted (β^{st} = 0.628). So, we hold R5.2. Therefore, the hypothesis H4 is confirmed. Comparing the results to the relations of our study show that the higher the perceived risk of investor is, the more he will try to use simultaneously the economic information (β^{st} = 0.656, t = 10.197, p = 0.001), information related to listed companies (β^{st} = 0.866, t = 11.567, p = 0.001) and financial analysis (β^{st} = 0.671, t = 10.415, p = 0.001). We preserve R6.1, R6.2 and R6.3. The hypothesis H5 is supported. We also find that risk perception has a significant and positive, instead of being negative, effect on the reinvestment intention (β^{st} = 0.178, t = 3.321, p = 0.001). This result leads us to reject H6.

Finally, we verified the possibility that investment performance plays a mediating role between risk perception and intention to reinvest. In the first (constrained model), we imposed two simultaneous constraints on the regression coefficients, $\beta^{st}_{PERC \rightarrow INTREINV} = 0$ and $\beta^{st}_{PERINVEST \rightarrow INTREINV} = 0$, whereas at the second model (complete model) no constraint has been imposed. The results obtained from estimating two models are reported in Table 4 below.

Table 4: Results of Both Models' Estimation

		Constrained Model	Complete Model
Perceived Risk ⟶ Reinvestment Intention	β^{st}	0.214	0.178
	β	0.249	0.208
	CR	3.959***	3.321***
Perceived Risk ⟶ Investment Performance	β^{st}	0.000	0.192
	β	0.000	0.196
	CR	-	3.560***
Investment Performance ⟶ Reinvestment Intention	β^{st}	0.000	0.193
	β	0.000	0.222
	CR	-	3.931***

***Significance level : 0.00 ; β^{st} : Standardized Regression Coefficient; β: Regression Coefficient; CR: Critical Ratio.

Initially, the relationship between investment performance and reinvestment intention is significant and positive (β^{st} = 0.193, t = 3.931, p = 0.001). Then, perceived risk has always significant and positive effect on intention to reinvest. Nevertheless, while passing from constrained to complete model (that is, when investment performance is taken into account), we find that the influence of risk perception on intention reinvestment becomes weaker (β^{st} = 0.178 <0.214) but remained significant (β^{st} = 0.178, t = 3.321, p = 0.001).When investment performance affects reinvestment intention significantly, the relationship between weakens but continues to be significant. So, we cannot totally reject the hypothesis H.7. The investment performance plays partial mediating role in affecting the risk perception's impact on the reinvestment intention.

5.0 Discussion

The present paper studies the interactions between antecedents of risk perception, perceived risk and behavioral responses induced by risk in the investment context. The results from this study leads to the following implications.

5.1 Antecedents of Perceived Risk

Results show that when the investor is familiar and does not control the tools necessary for investment in stock market his risk perception is high. Conversely, when he is familiar and controls these instruments investor perceives a low level of risk towards the stock market. We explicitly recognize that the controllability is a significant factor in

the formation of perceived risk. This finding was, moreover, confirmed by Slovic (1987) which highlights its importance in the perception of risk.

Results indicate that individual profile of investor is positively related to familiarity and controllability of investment tools. These results confirm that a self-confident and optimistic investor believes he knows and controls instruments necessary for investment. Therefore, he will perceive a low level of risk towards the stock market. So, we advance that these two personality traits (self-confidence and optimism) play a crucial role in how the individual feels familiar and controls the tools necessary for investment which will decrease risk perception.

In addition to the individual profile of investor, the perceived quality of disclosed information and the satisfaction with the yield reallocation by listed companies maintain each both a positive relationship with familiarity and controllability. Indeed, the more the investor perceives that listed companies transmit to the stock market good quality information (e.g., relevant, complete) the more he feels familiar and controls the tools of investment. Similarly, a great satisfaction with yield reallocation encourages better understanding and controlling of the tools of investment. In conclusion, perceived quality of disclosed information and satisfaction with yield reallocation by listed companies both strengthen in the investor the feeling that he is familiar with and controls investment instruments. Henceforth, his perception of risk towards the market will be even lower.

Besides, the results show that the more market participants do not share the same information the higher the degree of familiarity and controllability of investor. This could be explained by the fact that an investor estimating to be more informed than the others on the market tends to feel more familiar and controls the tools of investment. Therefore, he will perceive a lower level of risk towards the stock market. This finding was, in fact, found by Wang et al. (2006) who argue that "investors' risk perception was not increased by asymmetric information although they knew that information asymmetry would greatly influence their decision".

In summary, our results support that individual profile of investor, factors related to listed companies as well as that concerning the stock market influence the perceived risk.

5.2 Behavioral Responses to Perceived Risk

On the side of consequences, the proposed model suggests that risk perception influences the activity of information search and investment behavior.

In our study, the activity of search for information was measured from the source and type of information consulted. The results indicate that the higher the perceived risk of investor is the higher the investor will consult various information sources. Thus, perceived risk towards the stock will lead the investor not to prefer a particular information source (objective or subjective sources). Conversely, he will look for various information sources in order to reduce his risk perception. The current study was not limited to information sources only but it was interested in the type of information. Indeed, the results suggest that by facing a high perceived level of risk towards the stock market the investor will tend to use different types of information (economic information, financial analysis, information relative to listed companies). In other words, the stock market participant employs various types of information in order to decrease his perceived risk. We conclude that the link between risk perception and information search can be established within the context of investment. This finding was, moreover, confirmed by Cho and Lee (2006) who argue that "the link between perceived risk and the extent of information search (a link that has often been rejected in the extant literature) can be established within the context of investment".

Other than information search, the results suggest that a higher perception of risk has simultaneously created a strong intention to reinvest in the stock market and higher investment performance. Facing a high level of perceived risk, investors reinforce (rather they decrease) their intention to reinvest. This behavioral choice clearly shows that investors do not seek to reduce the vulnerability associated with negative outcomes. Although they perceive a high risk towards the stock market, investors do not adopt the second risk-reducing strategy (i.e., decrease in the amount at stake) in the context of investment. However, persons with higher perceived risk towards the stock market have a higher investment performance. These results may explain, according to Wang et al. (2006) the frequent stock exchange behaviors prevailing on the stock markets. Moreover, we find that investment performance can play the role of partial mediator between risk perception and intention to reinvest. Although perceived risk towards the stock market is

high the investor seeks to reinvest more by making frequent stock trading under the attraction and reinforcement of returns generated from the funds invested.

6.0 Conclusions

In this study, the proposed model highlights the antecedents and consequences of perceived risk in the context of investment. The results show that controllability plays a crucial role in the formation of perceived risk. Moreover, we find that the investor's individual profile, the factors related to the listed company as well as a factor related to the stock market have an impact on perceived risk. A future study could examine the effect of other variables on risk perception such as investment experience and demographic characteristics of investors (age, gender, income ...). Besides, we conclude that investors seek to mitigate the perceived risk towards the stock market through information search. The attraction of returns generated from the funds invested strengthens the reinvestment intention of investors in spite of the fact that they perceive risk towards the stock market. Thus, the specific context (i.e., the stock market investment) leads the investor not to adopt the second risk-reducing strategy namely the decrease in the amount at stake.

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Appendix

Figure 2: Integrated Model of Antecedents and Consequences of Perceived Risk

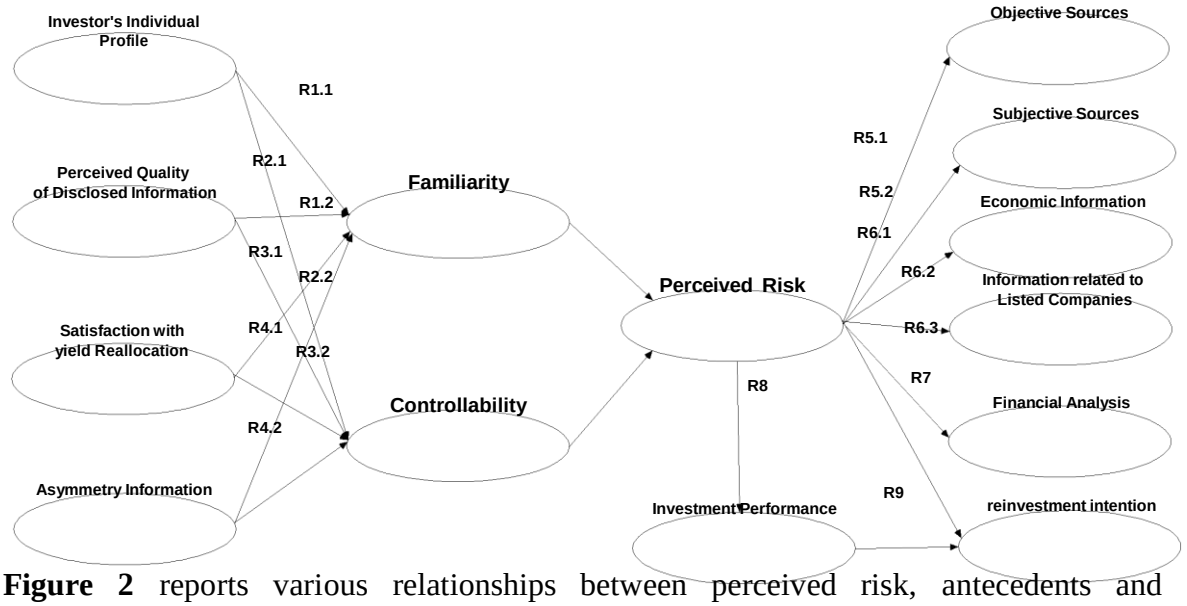

Figure 2 reports various relationships between perceived risk, antecedents and consequences of risk perception of investors in the Tunisian Stock Markets. In particular, the investor's individual profile, perceived characteristics of listed company and information asymmetry influence risk perception through familiarity and controllability of tools necessary to investment.